REMARKS

This application was originally filed with Claims 1-14. Claim 2 has been cancelled and Claims 15 and 16 have been added. Claims 1 and 3-16 are now pending in the application.

In the Office Action, Claims 1-6 and 9-14 are rejected; and Claims 7-8 are objected to.

OBJECTION ON BASIS OF INFORMALITY

Claim 8 was objected to on the basis of an informality of a period being missing. This has been corrected.

REJECTION UNDER 35 U.S.C. § 102

A. Claims 1, 2, 4-6, 9-11, 13, and 14 are stand rejected under 35 U.S.C. § 102(b) as being anticipated by Rowlette (U.S. Pat. No. 5,334,464).

Claim 1 has been amended herewith to recite a fuel cell and to further recite features of dependent Claim 2 pertaining to a crystal structure of the metal oxide, which ensures conductivity.

The present invention is directed to a bipolar plate for a fuel cell. Rowlette is directed to a plate for a lead acid battery. The differences between a fuel cell bipolar plate and a lead acid battery plate are so great and Rowlette is so different from the present invention, Rowlette is non-analogous.

Rowlette defines the following layers in order, including part numbers in Rowlette:

(1) lead dioxide layer (PbO_2);
(2) metal oxide layer **(18)**;

(3) first lead layer **(16a)**;
(4) first nickel layer **(14a)**;
(5) iron layer **(12)**;
(6) second nickel layer **(14b)**;
(7) second lead layer **(22)**; and
(8) third lead layer **(16b)**.

See the middle of Column 6 to the top of Column 7, the bottom of Column 8 to the top of Column 9, and the recitation of each of these layers in independent Claim 1 of Rowlette.

Rowlette utilizes, as a protective coating, the layer of lead (Pb) on either side of the iron substrate. In a variation, a layer of nickel and a layer of lead are used on the anode side. The metal oxide matrix placed over the lead is used to cause diffusion of lead atoms from the lead oxide battery active material into the metal oxide matrix. (Column 9, Lines 21-25.)

Clearly, Rowlette does not relate to a fuel cell plate, and Rowlette is inoperable to function as a fuel cell plate.

More specifically, Rowlette shows a lead acid battery with a plate that has a metal core of iron **(12)** and a layer of lead **(16a, 16b)** on both major surfaces of the iron core, whereby lead protects the iron and iron self-passivates to seal any pinholes in the lead coating. (Column 9, Lines 42-50.) The lead on the negative side **(16b)** of the iron core is for corrosion protection. The lead on the positive side **(16a)** of the iron core is for corrosion protection. The metal oxide **(18)** overlying the lead layer **(16a)** is for conductivity on the positive side. The metal oxide layer **(18)** faces the lead oxide layer active material for diffusion of lead from the lead oxide active material (PbO_2) into the metal oxide matrix **(18)** to fill the matrix, whereby lead provides a conductive path, thereby enhancing conductivity. (Column 9, Lines 21-25.) The metal oxide matrix **(18)** serves to diffuse lead atoms in and to the matrix for low-contact resistance.

Claim 1 is amended herewith to define a bipolar plate for a fuel cell that is conductive and has a metal oxide coating that has a crystal structure that is conductive. A fuel cell is not a lead acid battery. A fuel cell does not have a lead layer diffusing into a metal oxide layer. A fuel cell does not have a central current collector substrate coated with lead metal functioning as the protective layer and active material.

B. Claims 1, 3, 5, 9, 11, and 13 are stand rejected under 35 U.S.C. § 102(b) as being anticipated by Hwang et al. (U.S. Pat. No. 6,090,228).

Claim 2 has not been rejected on the basis of Hwang. The limitation of Claim 2 is now included in Claim 1. Thus, Claim 1 and Claims 3, 5, 9, 11, and 13, which depend on Claim 1, are patentable over Hwang.

REJECTION UNDER 35 U.S.C. § 103

Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Rowlette.

The basis of the rejection is that although Rowlette is silent as to layer thickness, the skilled artisan would somehow know it.

This rejection is unsupportable because Rowlette does not rely on a metal oxide coating for protection as in the present invention. Rather, Rowlette relies on lead (Pb) coating to protect the iron. Since Rowlette's metal oxide is applied for a different reason, it is not proper to assume its thickness is obvious.

Further, Rowlette does not suggest the features of Claims 1, 2 and 12 as combined in new dependent Claim 12.

ALLOWABLE SUBJECT MATTER

Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

New Claim 15 essentially replaces original Claim 7 and includes all the limitations of original Claims 1, 4 and 7.

New Claim 16 essentially replaces original Claim 8 and includes all the limitations of original Claims 1 and 8.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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By: _____

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